



# Southeast Alaska Cloudburst Chronicle

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Editor: Becky Carls

## Record Juneau Warm Spell Ended

—By Jerry Painter

Temperatures at the Juneau International Airport finally slid below zero ( $-1^{\circ}$  F) on Saturday, January 26<sup>th</sup>. This was the first incident of sub-zero temperatures at the Juneau Airport since January 3<sup>rd</sup>, 1997. It was also the longest stretch on record with no sub-zero temperatures.

Temperatures at the Juneau Airport never went below zero for a total of 1,849 days, a period of over five years. This stretch shattered the previous record by almost two years. The previous record of 1,159 days was set back in 1985-87. The third longest string was 1,075 days (just under three years) in 1959-61. The fourth, and last stretch of over 1,000 days occurred in 1982-85 and was 1,040 days in length. (Figures based on the official period of record at the Juneau International Airport: January 1942 through January 2002.)

At the Weather Forecast Office (Back Loop Road area) records only go back to December 1998. This is not enough of a data base to really announce so-called "Record Breaking Data." The general thought tends to be that it is considerably colder as one moves toward the Mendenhall Glacier.

Temperatures at the Weather Forecast Office do tend to support this idea. The coldest reading ever at the new office occurred on the January 22<sup>nd</sup>, 1999, at  $13^{\circ}$  below zero (the same morning at the airport the temperature was right on zero). This winter's low so far was on the 27<sup>th</sup> of January at 11 below (Juneau Airport, on the same morning, was 1 below) . ❄



# Introducing Your New WCM!

—By Chris Maier

**H**owdy Southeast Alaska! My name is Chris Maier and I will be your new Warning Coordination Meteorologist (WCM) in the National Weather Service's Juneau Forecast Office. In the coming months and years I'll be serving our communities in many ways. Foremost, I'll be working with our customers and partners to ensure our products and services are meeting your needs. Another area that I must focus on is the never ending battle to get the word out about the various types of severe natural events that can impact our region. From tsunamis to blizzards to earthquakes to wildfires to freezing rain to storm force winds at sea...I think I'm going to be one very busy weather dude!

In all communities, especially remote ones, weather spotters are an integral part of the weather warning process. Throughout our country's history many catastrophes have been averted because of the heads-up these spotters have given to their local National Weather Service Office and, therefore, those in harms' way. All the computers, satellites, and Doppler weather radars in the world cannot replace the work that one good weather spotter can do in his or her area. Weather spotters are simply invaluable to our core mission of "protecting lives and property." My predecessor Aimee Devaris did an incredible job of establishing our weather spotter network in Southeast Alaska. Let's all continue that great work and keep our guard up for those severe



New Warning Coordination Meteorologist Chris Maier checking the winds in southern Utah's backcountry.

weather events!

Now for some personal notes. I'm new to Alaska so please feel free to throw some advice my way at anytime. Originally from Philadelphia, my first job in the Weather Service was in Kalispell, Montana, in 1992. I have worked at the Forecast Office in Salt Lake City since 1994, mainly running the Fire Weather Program and serving as the Incident Meteorologist. Working on the front lines with the teams fighting wildfires has been my most challenging yet satisfying task to date. I am very much looking forward to the weather challenges that Southeast Alaska will throw my way and becoming friends with everyone! 💧

# Local Climate Effects in Southeast Alaska

—By Carl Dierking

Residents of Southeast Alaska know very well that a few miles can often be the difference between wet and dry, warm and cold, rain and snow, or windy and calm. Effects from mountains, glaciers, and ocean on the narrow strips of land near sea level where most people live often produce dramatic discontinuities to the general weather condition. Over the years, these differences, occurring in the same locations over and over again define the micro-climate zones of the region.

## Temperature

There are several ways local effects can produce large temperature differences. Land areas gain and lose heat faster than water bodies. So, at night without a blanket of clouds, land areas will cool quickly while the ocean temperature barely changes at all. As a result, the farther the location is from the ocean, the cooler it will get on a clear night. The opposite effect occurs during the day whenever the sun's rays are able to reach the ground. Land areas will warm more quickly the farther they are from the ocean.

Another local effect that can produce big temperature changes is the difference between windy, exposed areas and wind-sheltered areas. Just like stirring bath water to mix the hot and cold areas into a nice warm temperature, wind mixes the air and diminishes large temperature discontinuities. Calm air near the ground is more affected by temperature changes at the surface than air stirred by winds.

Brian Smith, a science student at Juneau Douglas High School, conducted a study for this year's Capital City Science Fair examining the effects of wind and ocean on temperatures in the

Mendenhall Valley. For the 44 days in December and January that he studied, Brian found that wind, or the lack of it, had an overall greater impact on the temperature gradient between ocean and inland locations than nighttime cooling, despite the fact that there were a few clear nights with very large temperature differences. This would likely be different in other locations and seasons.

## Precipitation

Rising air tends to produce condensation, clouds, and precipitation while sinking air can actually cause drying. Since winds are usually from the south to southeast when fronts from the Pacific Ocean bring rain and moisture-laden air to Southeast Alaska, south-facing mountain slopes act as wedges that force air upward, increasing the precipitation in adjacent locations. The opposite effect occurs on the north side of mountains where sinking air often results in a rain shadow.

## Micro-Climates

Knowledge of the geography in your area will allow you to draw reasonable conclusions about local differences in climate. Locations sheltered from the wind and furthest from the ocean will be the coldest spots on clear winter nights but also the warmest on sunny summer days. If mountains are located just to the south, an area will be drier. Waterfront locations will have milder winter nights but cooler summer days. Areas with mountains to the north will get a lot more rain.

So, where is the warmest and driest place in your community? Get out your map. 💧

# U.S. COAST GUARD CONTINUES TO IMPROVE NOAA WEATHER RADIO COVERAGE

—By Laura Furgione

Two more U.S. Coast Guard (USCG) high-level sites began transmitting the NOAA Weather Radio (NWR) audio on Thursday, January 24, 2002. Zarembo and Sukkawan Islands can be heard by tuning your radio to 162.540 MHz and 162.425 MHz, respectively. Zarembo Island is located just west of Wrangell and will provide additional NWR coverage for Sumner, Clarence, and Stikine Straits. Sukkawan Island is located just south of Prince of Wales Island and the community of Hydaburg. This transmitter is expected to cover western sections of Dixon Entrance and the extreme southern outer coast.

The USCG has also installed the transmitter at Duke Island and the system will soon be transmitting live NWR audio. The next transmitter the USCG plans to install is on Raspberry Island near Kodiak. This site will provide much needed coverage for a large part of the

Shelikoff Strait.

The goal of this project is to provide the Alaska Maritime Community with accurate, timely, and comprehensive weather information.

Currently, the NWS has 16 VHF-FM broadcast sites from Ketchikan to Kodiak plus Nome and Fairbanks. These sites transmit continuously on 100 to 1000 watt transmitters on Weather Channels 1 (162.55Mhz), 2 (162.40Mhz), and 3 (162.475Mhz) and the products are updated continually. The average coverage area of the sea level transmitters has only a 40-nautical-mile radius. This small NOAA Weather Radio footprint, or coverage area, leaves many Alaska communities out of range.

The U.S. Coast Guard currently transmits the NWS's products from three Coast Guard communication centers (Juneau, Valdez, and Kodiak).

The transmissions are broadcast twice per day from all 28 of their VHF-FM high-level sites. The hi-sites are located from Dixon Entrance to Bristol Bay with an average elevation of 2000 feet. Although the transmitters are only 30-50 watts, the average footprint has an approximately 100-mile radius due to their elevation.

By combining the NWS's continuous broadcast with the U.S. Coast Guard's numerous high-level sites and large footprints, the Alaska Maritime Community and many Alaska residents will have better access to accurate, timely, and comprehensive weather information.

Public comment is appreciated to verify the actual high-level site coverage area. Anyone wishing to provide comments can contact the USCG at (907) 463-2343 or the NWS at (907)790-6803. ♦

Please see "NWR" on page 5 for a table of NWR Broadcasts and High-level Sites.

# Weather Watchers

## Southeast's Spotter Network

—By Brian Bezenek

The National Weather Service in Juneau is overjoyed with the dedicated spotters we have, providing us with weather across Southeast Alaska. Your reports are an important asset in our weather forecasting, not only in the general forecasts but also in the severe weather warning program. They often have added that essential piece of information to the overall picture, helping us to provide a better product to you.

We are currently working on a specialized version of the spotter training program aimed at mariners and boaters. It will contain a large portion of the information in the spotter training program, but will also include more marine specific information. We hope to have most of the finishing touches on the presentation to debut it this spring in time for spring and summer activities.

This winter, we received over 40 reports from all over the Panhandle. We had several heavy snow reports from Haines, Juneau, and Saxman; nearly a dozen high wind reports from Juneau and Craig; details on damage from winds in the Craig area; and freezing rain reports from Haines, Juneau, and Petersburg. Please keep up the good work and send us your spring weather reports!

Becoming a spotter is easy! You can browse through the training information on the web, we can mail you a packet, or you can attend a short 2-hour spotter course. Courses may be scheduled in any community where there is enough interest to satisfy a minimal level of attendance (usually at least 10 people).

If you are interested in becoming a spotter, please give us a call at (907) 790-6803 or e-mail either:

[Chris.Maier@noaa.gov](mailto:Chris.Maier@noaa.gov) or

[Brian.Bezenek@noaa.gov](mailto:Brian.Bezenek@noaa.gov).

You will also find more information on the web at <http://pajk.arh.noaa.gov/spotter/spot.htm>

### MOST ACTIVE SPOTTER

We appreciate your time and dedication and recognize our most active spotters with special prizes and awards. This quarter, most active spotter was **John Markle** of Saxman with over 20 reports.

Congratulations, John! You will receive an "Alaska Cloud and Weather Field Guide" for your efforts!



(NWR - continued from page 4)

Southeast Alaska NOAA Weather Radio (NWR) Broadcasts		
Weather Channel 1	162.550 MHz	NWR Juneau, Ketchikan, and Sitka
Weather Channel 2	162.400 MHz	NWR Haines, Wrangell, and Yakutat
Weather Channel 3	162.475 MHz	NWR Craig
Tentative Southeast Alaska U.S. Coast Guard High-level Site NWR Broadcasts		
Weather Channel 4	162.425 MHz	Althorp Peak, Cape Fanshaw, and Sukkawan Island
Weather Channel 5	162.450 MHz	Duke Island, Mt. Robert Barron, and Zarembo Island
Weather Channel 6	162.500 MHz	Mud Bay
Weather Channel 7	162.525 MHz	Gravina and Mount McArthur

# NOAA Scientists: El Niño Developing

—By Chris Maier

Have you heard the news? Several weeks ago the National Weather Service's Climate Prediction Center announced that they believe an El Niño is developing. Remember, an El Niño is a warming of the surface waters along the equatorial region of the Pacific Ocean to above normal levels.

Our data buoy networks and satellites keep a constant vigil on the sea surface temperatures and winds in that portion of the Pacific. This is because El Niño events are known to have a significant impact on global weather patterns. Ocean currents influence the positioning of the jet stream, and the jet stream in turn dictates the general storm track. During El Niño, some portions of the world are removed from that general storm track for extended periods of time. In Australia and Indonesia, drought and extreme wildfire seasons are usually the result. In our own great country the southern portion of the lower 48 is favored during the winter months for an "El Niño storm track." Cooler and wetter weather when compared to normal is the result.

I hear all of you out there: "Well that's all great Chris, but what about Southeast Alaska? What does El Niño mean for us?" Good question, and I'm glad you asked. I decided to take a look at how our average monthly temperatures and precipitation varied in previous years when an El Niño event *was developing*. Since 1949 this

climate scenario has occurred 12 times. Since we are entering our spring and summer seasons, I narrowed my sight to those months. Data was taken from four communities with reliable records and which were spread reasonably well throughout the Panhandle.

As shown in the graphs, there were some interesting results from this comparison study. The early spring (March and April) was shown to be cooler than the 50+ year average with little deviation in precipitation. Then in May temperatures tended to rise closer to average for that time of year. Less precipitation also occurred most of the time in that month for those years when an El Niño developed.

The month of June was slightly cooler than average for these Southeast Alaska communities. There was no meaningful departure from average for rainfall. The most dramatic findings show up in the months of July and August. These months reveal a significant bias toward warmer and drier than average conditions.

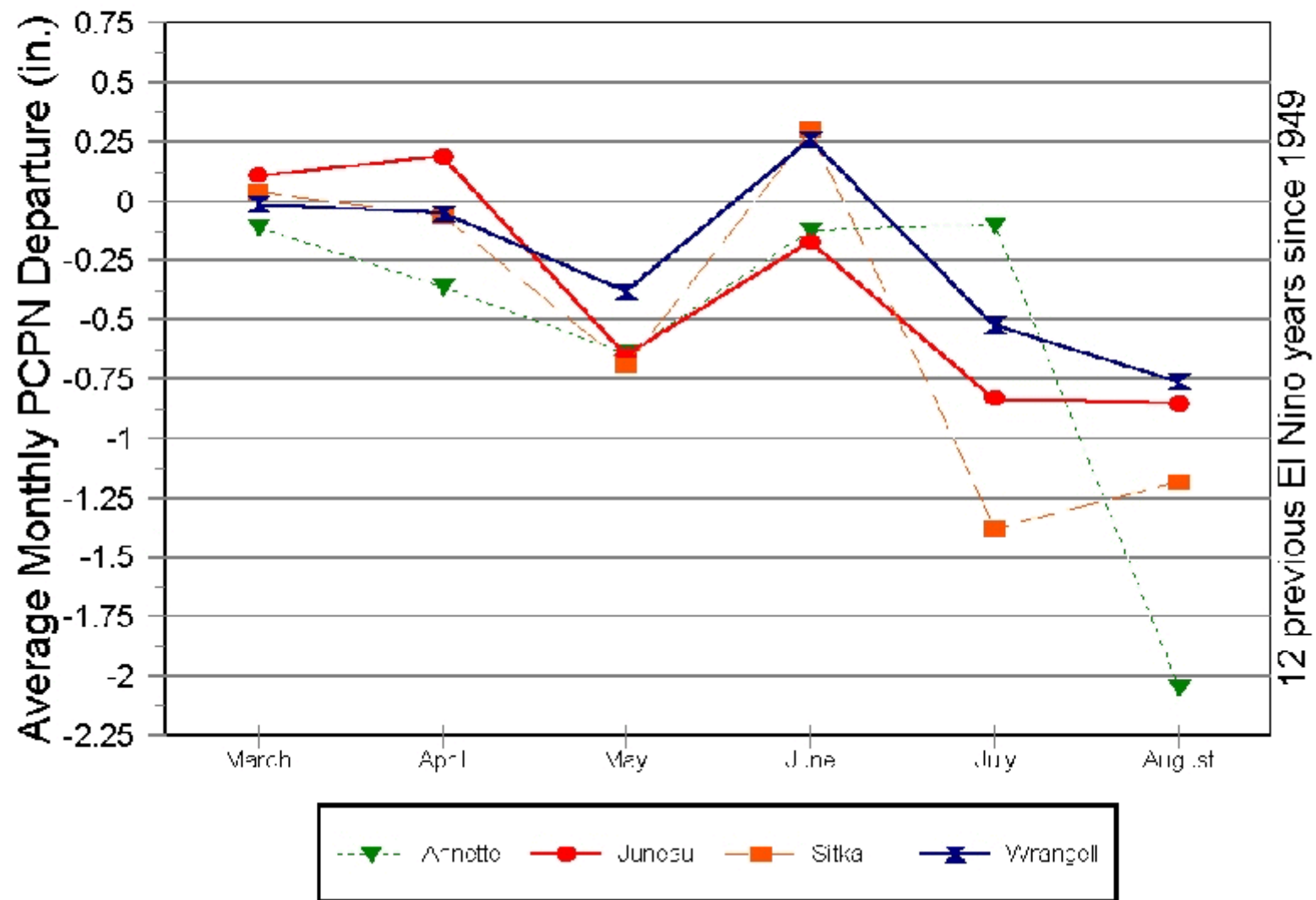
Does this mean it is guaranteed we will be warmer and drier this summer in Southeast Alaska? Of course not. Nothing is ever 100% in this business known as climate prediction. What this study does show, however, is that in years past when an El Niño was developing, the *majority of the time* that is exactly what happened. Take it to the bank! 💧

PLEASE SEE PAGES 6A & 6B FOR GRAPHS



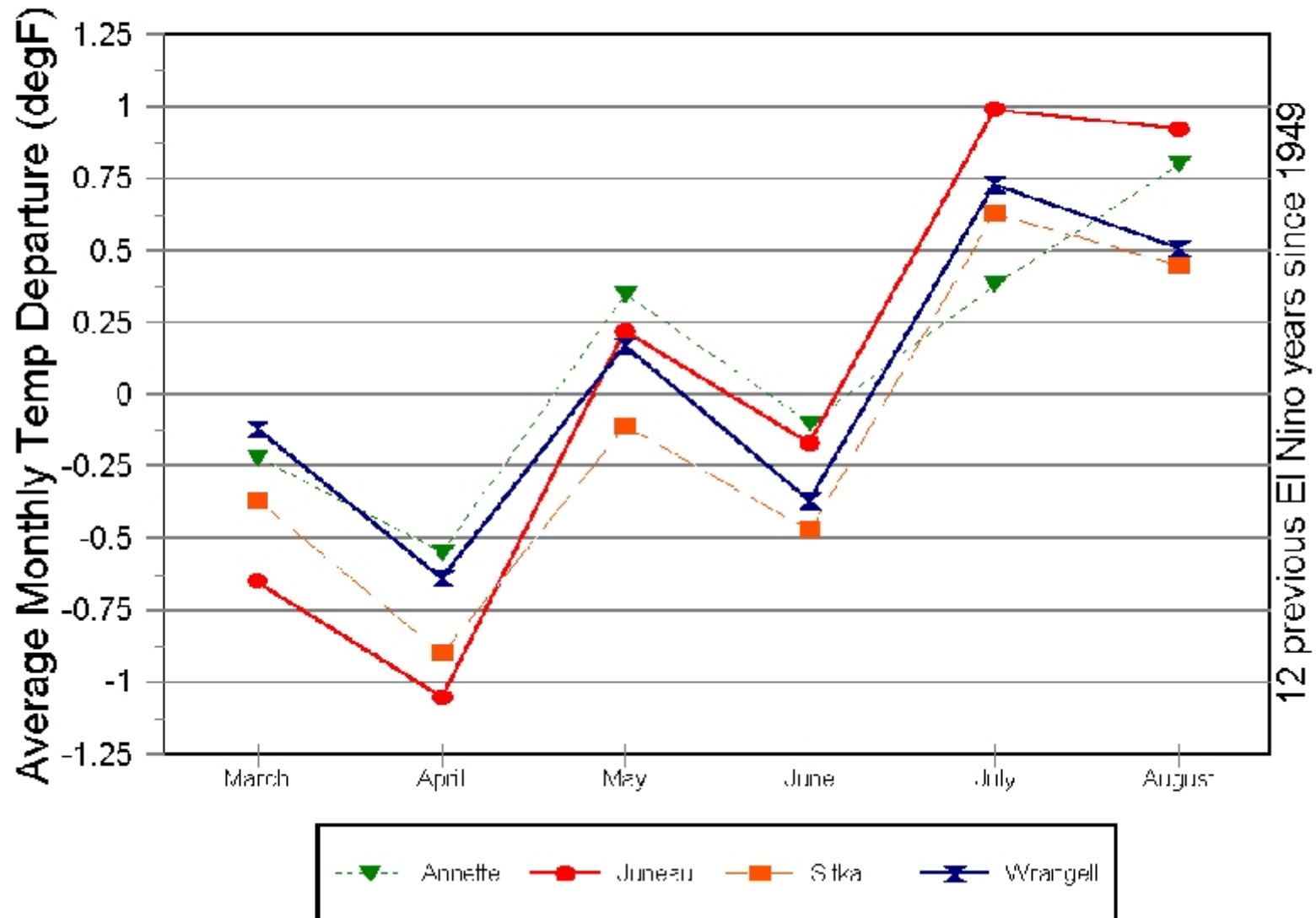
# El Nino Precipitation Influences

Spring and Summer in Southeast Alaska



# El Nino Temperature Influences

Spring and Summer in Southeast Alaska





## Come See Us at the Boat Show!

—By Laura Furgione

The Glacier Valley Rotary Club will be holding the 23<sup>rd</sup> annual Boat Show Friday, March 1<sup>st</sup> through Sunday, March 3<sup>rd</sup>.

Historically the show has been the largest boat show in Southeast Alaska promoting boats, boating products, and boating related services. The show also serves as the Rotary Club's main fund raiser, enabling them to assist the youth and needy of this community with a variety of worthwhile projects.

WFO Juneau will be hosting a booth again this year with numerous brochures including the updated *Mariner's Weather Guide*, marine charts, cloud charts, wind chill charts, and much more. This is your opportunity to speak with forecasters from the National Weather Service. More importantly, it is their chance to listen to you.

For those of you interested in detailed marine weather information, you may participate in one of our Marine

Snotter Information Seminars on Saturday, March 2<sup>nd</sup> or Sunday, March 3<sup>rd</sup> at 2 p.m. These half-hour presentations will give detailed training on local marine weather tendencies in Southeast Alaska.

You will even have a chance to **WIN** a NOAA weather radio (NWR). That is great news for those of you now covered by the newly installed NWR transmitters on the U.S. Coast Guard high-level sites.

See you there! ♦

## Differences in Buoy Wind and Wave Data Compared to Land-Site Data

—By Laura Furgione

The National Data Buoy Center (NDBC) serves as NOAA's focal point for data buoys and their associated automated weather systems. With the assistance of the U.S. Coast Guard, NDBC has budgetary approval to install ten new buoys in Alaska coastal waters. Two of the ten have already been deployed: Barren Islands (46079) and Fairweather Grounds (46083). The other eight are expected to be deployed by fiscal year 2004. The Central Aleutians, Cape Suckling, and Shelikof Strait buoys are expected to be deployed this year; the Western Aleutians, Southwest of Sitka Sound, and Shumagin Islands buoys should be deployed next year; and the Southeastern Bering and Albatross Bank buoys will likely be deployed in 2004.

These data buoys are an integral part of the comprehensive observation system that allows local forecast offices to issue weather warnings and forecasts for the protection of life and property. While these automated weather systems add crucial weather information for data sparse areas of heavy vessel operation, it is important to understand the reported data.

There are quite a few significant differences in the data provided by a buoy compared to that of a land-site station. Typically, airports have installed Automated Surface Observing Systems (ASOS). These ASOS report wind speed as an average over a two-minute period with the peak wind measured as a five-second gust speed. Buoys on the other hand report wind speed as an average over an eight-minute period with the peak as a five- or eight-second gust speed. Averaging winds

over eight-minutes compared to two-minutes has a greater smoothing tendency and could lead to less detail. In turn, wind observations from automated buoy instruments should not be used as a sole determinate for operations. Keep your eyes and ears on the weather forecasts and observations several days in advance of an expected outing.

Another important element included in buoy data is the significant wave height. This value is calculated as the average of the highest one-third of all the wave heights during a twenty-minute sampling period. Of course, there are no land-sites that can even compare to this crucial piece of information. For additional information on buoy measurement descriptions and units, please reference the NDBC site: <http://www.ndbc.noaa.gov/measdes.shtml#stdmet> ♦